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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/694,808

10/29/2003

Yavor Pachov

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6768

466 7590 03/12/2007  
YOUNG & THOMPSON  
745 SOUTH 23RD STREET  
2ND FLOOR  
ARLINGTON, VA 22202

EXAMINER

PILKINGTON, JAMES

ART UNIT

PAPER NUMBER

3682

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|-----------|---------------|
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3 MONTHS

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                  |               |  |
|------------------------------|------------------|---------------|--|
| <b>Office Action Summary</b> | Application No.  | Applicant(s)  |  |
|                              | 10/694,808       | PACHOV, YAVOR |  |
|                              | Examiner         | Art Unit      |  |
|                              | James Pilkington | 3682          |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 3-19 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 3-7, 10-16, 18 and 19 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 19 are objected to because of the following informalities:
  - Clm 19 line 5 reads "worm thus does not" should be "worm does not"Appropriate correction is required.
2. As indicated in the office action mailed 10/26/06, claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 18, 19, 2-7 and 9-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re clm 18, the phrase "sufficiently close" in line 8 of the clm renders the clm indefinite. It is not clear to the examiner to what degree the bore diameter must be close to the size of the worm.

Claim 19 recites the limitation "the part which delimits the bore" in line 6. There is insufficient antecedent basis for this limitation in the claim. What "part" delimits the bore?

### ***Claim Rejections - 35 USC § 102***

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5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 18, 19, 3 and 11-15, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Clark, Jr. et al, USP 4,625,946.

Clark, Jr. discloses a braking system, intended to be fitted to a mechanism, with one or more rotating members (10) comprising:

- A toothed wheel (26) connected rotationally with respect to at least one rotating member (10, C5/L8-10)
- A worm (30) driven rotationally by a motor (14), the worm (30) being permanently in mesh with the toothed wheel (26), characterized in that the worm (30) is contained in a bore with a diameter sufficiently close to that of the worm (30, see Figure 2), such that the worm (30) is maintained in a radial direction with respect to the toothed wheel (26) throughout its length, and it consequently is able to take up the stresses exerted on it by the toothed wheel (30) in a radial direction without any damage
- The worm (30) comprises at least one cylindrical bearing surface (at bearings in Figure 2, near characters 32, 60a and 61a) coaxial with its threaded portion, and said cylindrical bearing surface has a diameter such that the thread of the worm (30) does not bear against the wall of the part which delimits the bore

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- Specific energy absorption/dissipation means (springs 52, 53 and bumpers 58, 59; C7/L62-65), in addition to the teeth of the wheel and the thread of the worm (friction is always present between two surfaces)
- Said specific energy absorption/dissipation means comprise friction connecting means between the toothed wheel (26) and its hub or between the toothed wheel (26) and the shaft receiving this wheel (26), freeing the pivoting of this wheel (26) with respect to this hub beyond a certain torque threshold, with friction (friction is present in all areas, and friction is known to be an energy absorbing force)
- Said specific energy absorption/dissipation means comprises a mounting of the braking system with respect to the frame which contains it (the springs 52, 53 are floating in the housing and the bumpers 58, 59 are flexible and these parts mount the brake system with respect to the frame)
- A electronic controller (switch 45) for controlling the speed of the motor (14) for actuating the worm (30) (C5/L61-65) and that the supply to the motor (14) and the control (45) of the speed thereof are performed separately from those of the motor (34) of the mechanism, by means of an electronic controller and a controller having a independent link to the control station of the mechanism, this control station delivering redundant information to the said controller (C5/L8-C6/L18)

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4 and 5, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark, Jr. et al '946 in view of Stoll et al, USP 5,834,662.

Clark, Jr. discloses all of the claimed subject matter as described above.

Clark, Jr. does not disclose that the specific energy absorption/dissipation means comprises a sliding mounting of the worm in the bore and the energy absorption/dissipation means are resilient means, such as a spring, interposed between at least one worm and the walls of the part and are actuated upon the sliding of the worm.

Stoll teaches a specific energy absorption/dissipation means comprises a sliding mount of the worm (5, indicated by arrows 17) and the energy absorption/dissipation means are resilient means, such as a spring (spring washers 15), interposed between at least one worm and the walls of the part and are actuated upon the sliding of the worm (see Figure 2) for the purpose of providing a worm gear arrangement for rotary actuation which has a compact, space saving construction and has the capability to take up and transmit extraordinarily high external forces and moments (C1/L64-C2/L2).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Clark, Jr. and provide a specific energy

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absorption/dissipation means that comprises a sliding mount of the worm and the energy absorption/dissipation means are resilient means, such as a spring, interposed between at least one worm and the walls of the part and are actuated upon the sliding of the worm, as taught by Stoll, for the purpose of providing a worm gear arrangement for rotary actuation which has a compact, space saving construction and has the capability to take up and transmit extraordinarily high external forces and moments.

9. Claims 6, 7 and 16, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark, Jr. et al '946 in view of Stoll et al, USP 5,834,662 and further in view of Niaura et al, USP 6,352,143.

Re clms 6 and 16, Clark, Jr. in view of Stoll discloses all of the claimed subject matter as described above.

Clark, Jr. in view of Stoll does not disclose that the specific energy absorption/dissipation means comprises a liquid contained in the space delimited by at least one piston and one or more conduits and/or interstices for this liquid to escape upon sliding of the worm/piston, this or these conduits and/or interstices having reduced sections suitable for allowing the said liquid to escape only over a non-instantaneous time interval.

Niaura teaches a specific energy absorption/dissipation means that comprises a liquid (hydraulic fluid) contained in the space delimited by at least one piston (7) and one or more conduits and/or interstices (20-23) for this liquid to escape upon sliding of the worm/piston (7), this or these conduits and/or interstices (20-23) having reduced

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sections (area of opening changes by gates, see Figure 3) suitable for allowing the said liquid to escape only over a non-instantaneous time interval for the purpose of providing a damping system which is able to independently change the magnitude of the damping force during a stroke (C2/L40-45).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Clark, Jr. in view of Stoll and provide a specific energy absorption/dissipation means that comprises a liquid contained in the space delimited by at least one piston and one or more conduits and/or interstices for this liquid to escape upon sliding of the worm/piston, this or these conduits and/or interstices having reduced sections suitable for allowing the said liquid to escape only over a non-instantaneous time interval, as taught by Niaura, for the purpose of providing a damping system which is able to independently change the magnitude of the damping force during a stroke.

Re clm 7, Niaura discloses that the said one or more conduits (20-23) and/or interstices comprise means for adjusting the flow (gates covering the holes see Figure 2) of the liquid.

10. Claim 10, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Clark, Jr. et al '946 in view of Stoll et al, USP 5,834,662 and further in view of Fernandez et al, USP 5,005,777.

Clark, Jr. in view of Stoll discloses all of the claimed subject matter as described above.



Clark, Jr. in view of Stoll does not disclose a sensor or detector that measures the sliding of the worm and communicates with the means for driving the said one or more rotating members.

Fernandez teaches a sensor or detector (60/62) that measures the sliding of the worm (54) and communicates with the means for driving the said one or more rotating members (electrical coupled to the control circuit 28) for the purpose of providing a means for detecting the movement of the worm and communicating the information to the control circuit (C2/L30-42).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Clark, Jr. in view of Stoll and provide a sensor or detector that measures the sliding of the worm and communicates with the means for driving the said one or more rotating members, as taught by Fernandez, for the purpose of providing a means for detecting the movement of the worm and communicating the information to the control circuit.

### ***Response to Arguments***

11. Applicant's arguments filed 1/26/07 have been fully considered but they are not persuasive.

12. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the housing/bore supports the worm) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the

specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Clm 18 only states that the worm is inside the bore, not that the bore supports the worm. However, Clark does indeed show a bore/housing that supports a worm, the bore/housing 32 of Clark has two bearing support elements attached to the housing (see Figure 2) that support the worm.

13. In response to the applicant's argument that Clark does not show a bore as defined by the instant application the examiner would again like to note that claims are interpreted in light of the specification but limitations from the specification are not read into the claim. Also, as noted above the phrase "sufficiently close" renders the claim indefinite and in the absence of any structural limitations of the bore Clark does indeed disclose a bore (space inside the housing) that holds the worm.

14. It is not clear to the examiner what the applicant is attempting to argue on page 10 line 11 through page 11 line 5. It appears that the applicant wants to argue that Clark is not capable of preventing axial movement of the worm. It is the examiner's position that Clark does indeed disclose a device that is capable of preventing axial movement of the worm. When the device is not being driven the toothed wheel will push on the worm causing the worm and worm shaft to move and be braked by the clutch assembly which comprises springs and bumpers. If applicant further wishes to disagree Clark further shows, in another embodiment not used in the rejection, shock-absorbing springs used to dampen movement of the worm (see Figure 6).

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Pilkington whose telephone number is (571) 272-5052. The examiner can normally be reached on Monday-Friday 8:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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3/7/07

A handwritten signature in black ink, appearing to read 'Richard Ridley', is positioned above the printed name.

RICHARD RIDLEY  
SUPERVISORY PATENT EXAMINER